

CE376

AEROSOL LIDAR



CE376 LiDAR



Air quality / Climate Sciences / Meteorology / Aviation

PRINCIPLE OF MEASUREMENT

Aerosol LiDARs (Light Detection And Ranging) are optical remote sensing instruments providing atmospheric vertical profiles. Pulse laser light emission (single or multiple wavelengths) is sent in the atmosphere. The light is scattered by the particles and part of it is backscattered to the LiDAR.

This collected signal is then measured as a function of time and distance.

The analysis of the signal can provide information on the spatial distribution of the aerosol in terms of extinction, backscatter coefficient, volume concentration, mass concentration and much more for complex instruments (temperature, size distribution, shape, refractive index, type of aerosol).

OUR CE376 AEROSOL LIDAR

The CE376 is a state-of-the-art aerosol LiDAR with performant technological components suitable for operational & precise monitoring of the atmosphere.

It operates in the visible (green) and/or in the near infrared (NIR) with depolarization channels options for enhanced aerosol characterization.

The CE376 is the perfect solution to monitor industrial dust emissions, urban pollution, volcanic ash and all type of aerosol particles.

172 Rue de Charonne,
75011, Paris - France

+33 1 43 48 79 33

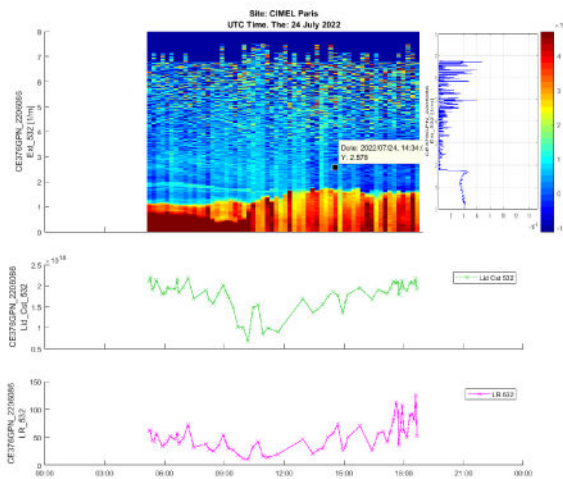
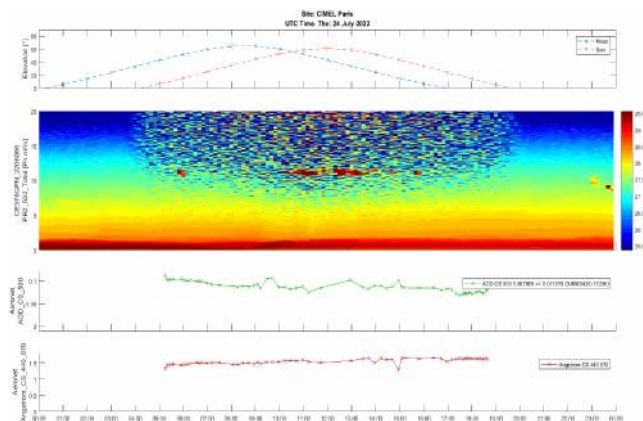
cimel@cimel.fr

www.cimel.fr

OUR MONITORING SOFTWARE: IAAMS

Integrated Automatic Aerosol Monitoring Software

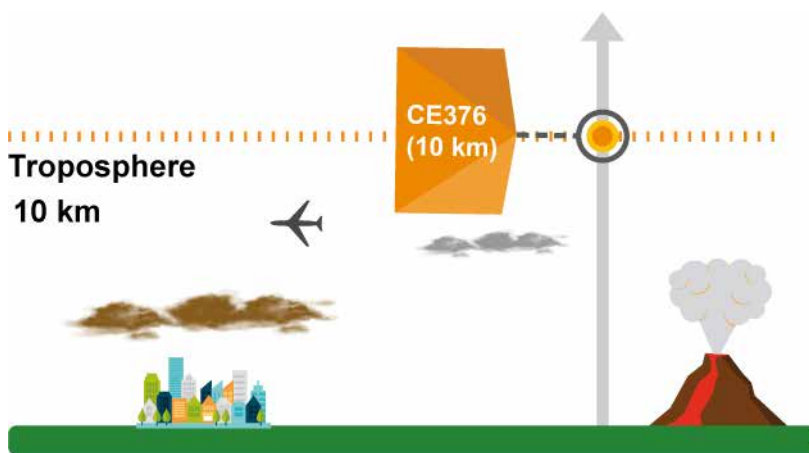
- ✓ Compatible with CE376 LiDARs & CE318-T photometers
- ✓ Data exportation (NASA - AERONET compatible)
- ✓ Data processing and synergy through advanced algorithms
- ✓ Dashboard & processing customization
- ✓ Unique & user-friendly interface



(Left) Time series of sun and moon elevation, AOD at 500 nm Angstrom Exponent from sun photometer measurements; Quicklook of LIDAR attenuated backscatter at 532 nm, (Right) Quicklook of extinction coefficient and time series of lidar constant and lidar ratio at 532 nm

APPLICATION FIELDS

- Air quality:
 - Anthropogenic pollution:
 - Urban monitoring
 - Industrial control
 - Natural events
 - Volcanic ash
 - Sand / dust storm
 - Forest fires
- Climate change
- Airport flight operation
- Atmospheric sciences
- Aerosol & Cloud modelling



FEATURES & BENEFITS

- Aerosol vertical profiles up to the top of the troposphere
- Automatic quantitative aerosol loading by coupling with our CE318-T photometers
- Eye safety compliance with EN-60825/ANSI Z136 standard
- Easy transportation & suitable for field campaigns
- Very short blind zone

Real time “quicklook” visualization

Automatic extinction & backscattering profiles

High stability and low maintenance

Aerosol layers characterization

PBL detection



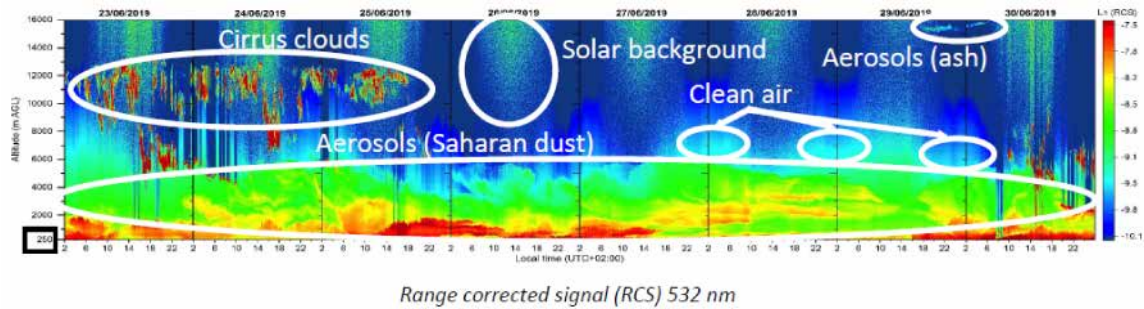
Synergy with our **CE318-T** multispectral photometer

SOME REFERENCES

COBIACC Campaign - 2019

For the entire month of July in Caillouël-Crépigny (France), scientists from the University of Lille, IMT and ATMO Hauts-de-France analyzed particles in the atmosphere and their impact on health in rural areas.

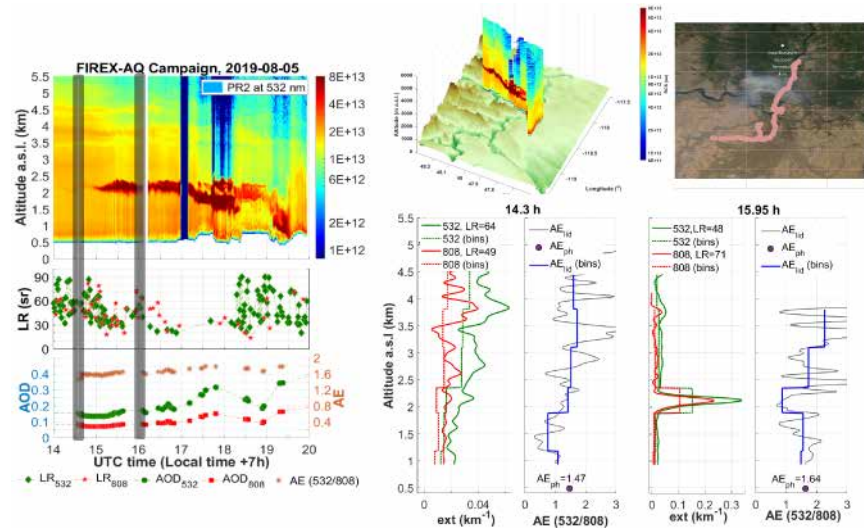
The goal was to understand the formation and the composition of particles and their precursors in the air in a rural environment during the summer period.



FIREX-AQ Campaign - 2019

NOAA and NASA teamed up on a massive research campaign called FIREX-AQ that will use satellites, aircraft, drones, mobile and ground stations to study smoke from wildfires and agricultural crop fires across the U.S.

Cimel provided a CE376 micro-LiDAR as well as its network of CE318-T photometers through AERONET to have detailed measurements of aerosols emitted from wildfires and agricultural fires.

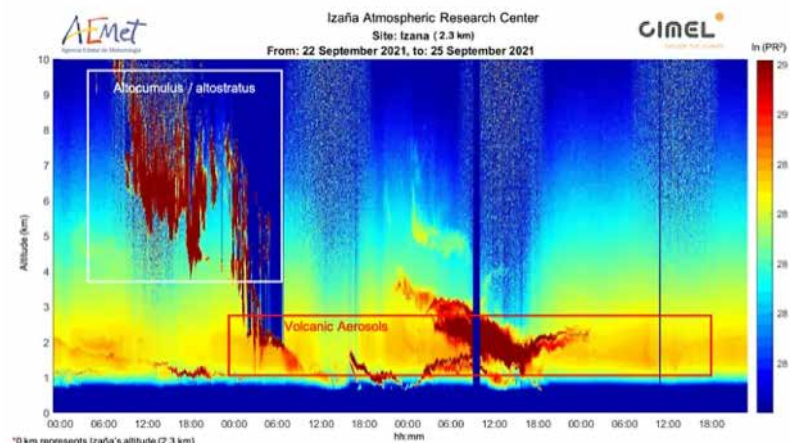


La Palma eruption - 2021

The Cumbre Vieja volcano on La Palma in the Canary Islands erupted on 19th September 2021 for the first time since 1971 resulting in large lava flows and evacuations.

The boiling lava met the sea water which created a massive plume of smoke full of hydrochloric acid which is an extremely dangerous gas to breathe.

Our CE376 LiDARs tracked plumes of the volcanic ash from the volcanic eruption on La Palma.



Cimel Electronique is a French manufacturer of meteorological and atmospheric observation systems for “climate - sensitive” activities

TECHNICAL SPECIFICATIONS

Power supply	100 -250 VAC 50/60 Hz
Fuse characteristics	Slow blow T6.3A
Typical power consumption	40 W
Maximum power consumption	200 W
Operating conditions	<u>Temperature:</u> +18°C – +28°C / 65°F – 82°F <u>Humidity:</u> 5% to 75%
Dimensions	713 x 463 x 691 mm / 28 x 18.2 x 26.8 in
Weight	35 kg / 77 lbs
Computer interface	USB 2.0
Acquisition mode	Photon counting
Acquisition time	1 s to 1200 s
Maximum range measurement	30720 m
Minimum range measurement	50 m
Range resolution	15 m
Eye safety	IEC 60825-1 compliant
Laser divergence	Green: <50 µrad / NIR: 460 µrad
FOV reception	Green: 230 µrad / NIR: 520 µrad

Reference	Channels	Available bands
CE376-G	532 nm (Green laser)	- Vertical aerosols and clouds profile (Standard) - PBL
CE376-GP	532 nm (Green laser), depolarization	- Standard - Non-sphericity (Particle shape) - PBL
CE376-N	808 nm (NIR laser)	- Standard - PBL
CE376-GN	- 532 nm (Green laser) - 808 nm (NIR laser)	- Standard - Spectral dependence (Particle size) - PBL
CE376-GPN	- 532 nm (Green laser), depolarization - 808 nm (NIR laser)	- Standard - Spectral dependence (Particle size) - Non-sphericity (Particle shape) - PBL

Scan to see the datasheet



172 rue de Charonne, 75011 PARIS

Phone: +33 (0)1 43 48 79 33

Email: sales@cimel.fr

www.cimel.fr